Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) Process for the automatic rectification of images, wherein ~~at least one~~ an image is rectified by a mapping function onto a reference image (R), and at least some parameters of the mapping function are unknown, said process comprising ~~at least~~:

~~an extraction of~~ extracting at least three objects (O1-O3) from the image (O);

~~a determination of~~ determining at least three control points in the image, ~~where~~ such that characteristic object points of the extracted objects are determined as control points;

~~an assignment of~~ assigning the objects (O1-O3) to objects (O1'-O3') in the reference image, ~~where the objects in the two images are assigned on the basis of the~~ such that assignment is made according to similarity between ~~the~~ corresponding objects in the two images and/or on the basis of a vector grid~~, and the vector grid is~~ formed by ~~the~~ connections between the characteristic object points; and

~~a selection of~~ selecting one of a suitable mapping function and ~~and/or an adjustment of the~~ adjusting parameters of the mapping function, whereby the mapping function is changed by changing the parameters in such a way that ~~the~~ cumulative error in ~~the~~ positional differences between ~~the projected~~ control points and ~~the~~ corresponding points in the reference image is minimized.

2. (currently amended) Process according to claim 1, further comprising ~~the generation of:~~

generating weighted control points~~, where~~ for forming a control point structure, comprising a limited number of pixels, ~~is formed~~ around a control point of at least one of the image and ~~and/or of~~ the reference image; and

projecting the control point structure, using ~~is projected by~~ the mapping function, onto the ~~other~~ image serving as the image structure ~~so that it can be seen~~ for determining whether there is also a corresponding image structure of sufficient quality ~~there as well, where a~~ , wherein

the quality of the control point structure is ~~described~~ measured by at least ~~in terms of~~ one of its variability, directional contrast, and/or similarity, and ~~a~~ weighting of the control points ~~is determined~~ on the basis of ~~this~~ said control point structure quality.

3. (currently amended) Process according to claim 2, further comprising:

~~an adjustment of the~~ adjusting a position of the control point in at least one of the image and ~~and/or in~~ the reference image~~, where~~;

adjusting, for at least one channel, ~~the form of~~ a control point structure gray-scale value distribution ~~of the control point structure~~ form in the reference image, and ~~the form of the~~ a control point structure gray-scale value distribution form of the image structure in the image ~~are adjusted~~ , to each other;

determining, ~~whereby,~~ in at least one of the image and ~~and/or in~~ the reference image, whether there is at least one first difference between the gray-scale values of two adjacent pixels of the control point structure and at least one second difference between gray-scale values of ~~the~~ corresponding pixels in the image structure ~~is found,~~ ;

determining an error value ~~being derived~~ from ~~the~~ a difference between ~~these two~~ said first and second differences~~, with the~~;

mapping a less-resolved image structure component ~~being mapped~~ onto ~~the~~ a more ~~highly~~ resolved image structure component~~, with~~ ; and

shifting the control point structure in at least one of the image and ~~and/or in~~ the reference image ~~being shifted~~ , in ~~the~~ at least one of a vertical and ~~and/or~~ a horizontal direction, to determine ~~the error for the~~ a new position error.

4. (currently amended) Process according to claim 2 ~~or Claim 3~~, further comprising ~~an adjustment of the parameters~~ adjusting at least one of individual parameters of the mapping function and ~~and/or~~ a selection of a suitable mapping function, ~~where~~ such that a change of the mapping function is ~~changed~~ made by ~~changing the parameters~~ said adjusting in such a way that ~~the~~ a cumulative error of ~~the~~ positional differences between projected control points and ~~the~~ corresponding weighted control points in the reference image is minimized ~~under consideration of the weighting of the control points~~.

5. (currently amended) Process according to ~~one of Claims 1-4~~ claim 1, further comprising performing a compensating calculation ~~by means of~~ using a correction function, wherein, for at least two control points, at least one vertical and one horizontal correction value is determined, ~~which embody the~~ said correction values correcting for positional difference between ~~the~~ a projected control point and ~~the~~ a corresponding control point in the reference image, and wherein the correction function is determined as a function of the correction values.

6. (currently amended) Process according to claim 5, further comprising ~~a projection of the~~ projecting corner coordinates of an image element onto image positions, wherein ~~the~~ image positions of the corner coordinates are determined ~~on the basis of~~ from the mapping function and the correction function.

7. (currently amended) Process according to claim 6, further comprising:

performing a resampling, wherein ~~the~~ corner coordinates ~~mark out~~ describe a polygon~~, preferably a rectangle,~~ and

the gray-scale values enter into the final gray-scale value in correspondence with ~~the~~ a percentage of areas of all ~~the~~ image elements lying within the polygon.

8. (currently amended) Process according ~~to one of Claims 1-7~~ claim 1, characterized in that ~~the~~ said step of extracting ~~extraction~~ comprises performing at least one of a classification and ~~and/or~~ a geometric structure analysis, ~~wherein in the~~ said process further comprising:

~~classification,~~ analyzing the properties of the image ~~are analyzed,~~ and forming at least one of objects and ~~and/or~~ areas of ~~the same~~ like classifications ~~class membership are formed~~, if classification is performed; and

if ~~in~~ the geometric structure analysis is performed, ~~the~~ determining an edge contour of an object ~~is determined on the basis of the~~ from contours of an area~~, and/or~~ and

numerically characterizing ~~the~~ objects are ~~characterized numerically~~ by ~~means of~~ a structure index.

9. (currently amended) Device for ~~the~~ automatic rectification of images, wherein ~~at least one~~ an image ~~can be rectified~~ is rectifiable by a mapping function onto a reference image (R), and at least some ~~of the~~ parameters of the mapping function are unknown, said device comprising ~~at least~~:

~~a~~ an extraction module (1, 2) for extracting at least three objects (O1-O3) from the image (O);

a control point determination module (3) for determining at least three control points in the image, wherein characteristic points of the extracted objects ~~can be~~ are determined as control points;

~~a~~ an object assignment module (4) for assigning the objects (O1-O3) to ~~the~~ objects (O1'-O3') in the reference image, ~~where~~ such that a correspondence between the objects in the two images is established ~~on the basis of the~~ according to at least one of similarity between objects and ~~and/or on the basis of~~ a vector grid~~, the vector grid being~~ formed by connecting characteristic object points; and

a selection module for at least one of selecting a suitable mapping function ~~and/or for~~ and adjusting ~~the~~ parameters of the mapping function, whereby the mapping function is changed by changing the parameters in such a way that ~~the~~ cumulative error in ~~the~~ positional differences between ~~the~~ ~~projected~~ control points and ~~the~~ corresponding points in the reference image is minimized.

10. (currently amended) Device according to claim 9, further comprising a module (6) for generating weighted control points, by means of which a control point structure comprising a limited number of pixels is formed around a control point of at least one of the image and ~~and/or of~~ the reference image; wherein the control point structure is mapped by the mapping function onto the ~~other~~ image serving as the image structure, ~~wherein~~ the quality of the control point structure ~~can be~~ is ~~described~~ measured by at least ~~in terms of~~ one of its variability,

directional contrast, and ~~and/or~~ similarity, and ~~a~~ weighting of the control points is determined on the basis of ~~this~~ said control point structure quality.

11. (currently amended) Device according to claim 10, comprising a module ~~by means of which the~~ for adjusting a position of the control point in at least one of the image and ~~and/or in~~ the reference image ~~can be adjusted~~,

wherein the form of a gray-scale distribution of the control point structure and the form of the gray-scale distribution of the image structure ~~can be adjusted to each other~~ are relatively adjustable on at least one channel, wherein at least one first difference between ~~the~~ gray-scale values of two adjacent pixels of the control point structure, and at least one second difference between ~~the~~ gray-scale values of the corresponding pixels of the image structure, are formed, wherein an error value is determined from a difference between ~~these two~~ said first and second differences~~, an error is derived~~, wherein ~~the~~ a less-resolved image structure component is mapped onto ~~the~~ a more highly resolved image structure component, and wherein the control point structure in at least one of the image and ~~and/or in~~ the reference image are shifted in ~~the~~ at least one of a vertical and ~~and/or in the~~ a horizontal direction, to find the error value for ~~the~~ a new position.

12. (currently amended) Device according to claim 10 ~~or Claim 11~~, further comprising a module (7) for adjusting ~~, by means of which~~ the parameters of the mapping function ~~are adjusted~~, wherein the mapping function is changed by changing the parameters in such a way that ~~the~~ a cumulative error of ~~the~~ positional differences between ~~the~~ weighted control points and ~~the~~ associated projected image points is minimized ~~under consideration of the weighting of the control points~~.

13. (currently amended) Device according to ~~one of Claims 9-12~~ claim 9, further comprising a module (8) for performing ~~, by means of which~~ a compensating calculation ~~can be carried out, wherein, for each control point,~~ for determining at least one correction value in ~~the~~ a vertical direction and one correction value in ~~the~~ a horizontal direction ~~can be determined~~, ~~which~~ the correction values ~~embody~~ correcting the deviation of the value of the

mapping function from the value of the compensating function at the location of the control point.

14. (currently amended) Device according to ~~one of Claims 9-13~~ claim 9, further comprising a module (9) for mapping ~~, by means of which~~ the corner coordinates of an image element ~~can be mapped~~ onto image positions, wherein the image positions of the corner coordinates ~~can be~~ are determined ~~on the basis of~~ from the mapping function and the correction function.

15. (currently amended) Device according to ~~one of Claims 9-14~~ claim 9, further comprising a module (10) for performing ~~, by means of which~~ a resampling ~~can be performed~~, wherein the corner coordinates ~~mark out~~ describe a polygon, ~~preferably a rectangle,~~ and ~~the~~ wherein gray-scale values determine ~~the~~ a final gray-scale value ~~in~~ from a correspondence with ~~the~~ a percentage of areas of all ~~the~~ image elements ~~lying~~ within ~~the~~ said polygon.

16. (currently amended) Device according to ~~one of Claims 9-15~~ claim 9, ~~characterized in that the~~ wherein said extraction module ~~(1)~~ includes means for performing at least one of a classification ~~and/or a module (2) for~~ a geometric structure analysis, wherein in ~~the~~ said classification process, the properties of the image ~~can be~~ are analyzed and ~~the~~ at least one of objects and ~~and/or~~ areas of ~~the same~~ like class membership are formed; and

in ~~the~~ said geometric structure analysis includes ~~the~~ at least one of determining an edge contour of an object ~~can be found~~ from ~~the~~ an edge contour of an area and ~~and/or an object can be~~ numerically ~~characterized~~ characterizing an object by a structure index.

17. (new) The process according to claim 7, wherein said polygon is a rectangle.

18. (new) The device according to claim 15, wherein said polygon is a rectangle.

Amendments to the Drawings:

The attached sheet of drawings includes changes to Fig. 1. This sheet, which includes Fig. 1, 4, and 5, replaces the original sheet including Figs. 1, 4, and 5. Fig. 1 is amended to replace the German language labels with English language labels.

Attachment: Replacement Sheet